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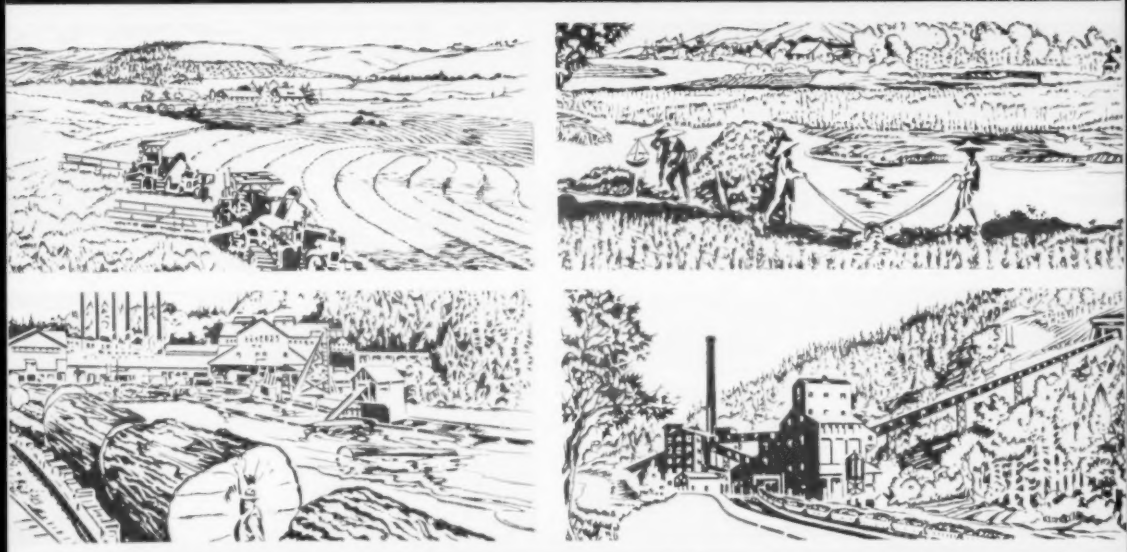

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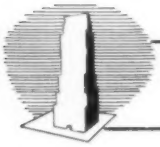

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GEOGRAPHIC TRAINING AND METHOD APPLIED TO TRADE AREA ANALYSIS OF LOCAL SHOPPING CENTERS

PAUL H. SISCO
Memphis State College, Memphis, Tennessee

Marketing geography is becoming an important field of geographic research as evidenced by the increasing number of geographers entering this field. Not only are geographers employed on a full time basis in marketing research, but teams of geography students from some of our leading universities are being employed in marketing research during summer vacation. For example, during the summer of 1955, several of these teams, from a university in the Mid-west, were employed by a large grocery company for short-period marketing research in some of our cities. One of these teams worked in Memphis and Atlanta.

These and other indications of the growing recognition of the importance of geographic training and method in marketing research, mean an increase in opportunities for more students who wish to enter an applied phase of geography.

The purpose of this study is to stimulate further interest in marketing research, as one facet of geographic study, by showing some of the ways in which the geographer may use his training and method of approach, in the trade area analysis of local shopping centers.[1] Techniques that are the special forte of the geographer are emphasized, but techniques that can be borrowed from other disciplines are not overlooked.[2]

In studying and analyzing a trade area any researcher is con-

[1] Local shopping center, as used in this study, refers to an agglomeration of retail and service establishments which serve only a part of an urban area, or attract customers from only a short distance. Thus it is non-regional in function.

[2] William Applebaum, "Marketing Geography," *American Geography: Inventory and Prospect*, ed. by Preston E. James and Clarence F. Jones (Syracuse University Press, 1954), p. 250.

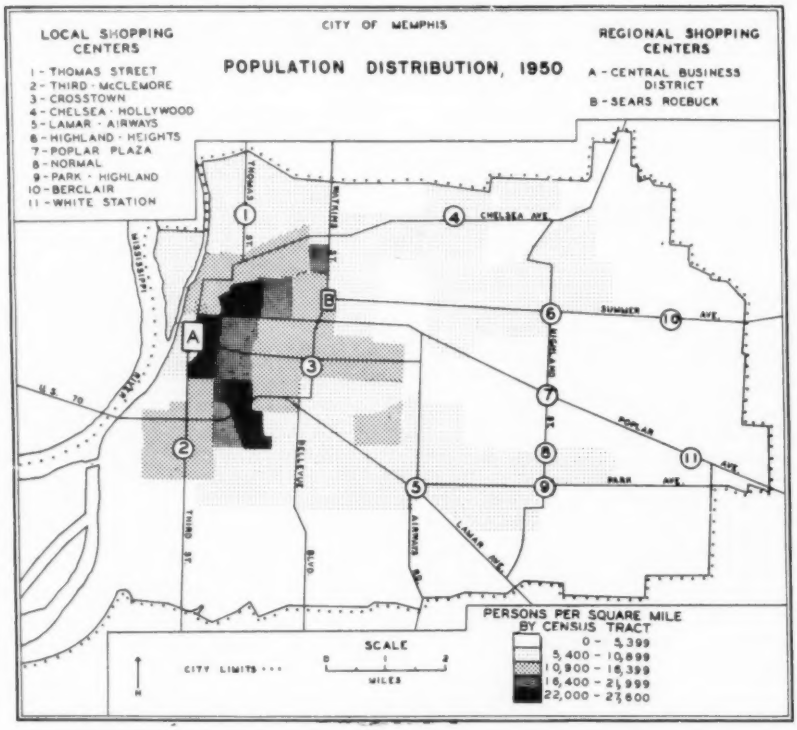

FIG. 1

fronted with at least three problems. These are: (1) factors to be considered, (2) sources of information, and (3) analysis and presentation of findings.

IMPORTANT FACTORS ASSOCIATED WITH TRADE AREA ANALYSIS

Some of the most important factors in analyzing the trade areas of local shopping centers are: (1) population density, distribution, characteristics, and trends; (2) retail sales; (3) family income; (4) average monthly rent, value, ownership, and condition of dwelling units as they reflect the retail trade potential of an area; (5) accessibility of the trade area to its shopping center; and (6) certain other factors such as the buying habits of the people. The geographer's training equips him with the proper "know-how" in gathering and evaluating data concerning these factors.

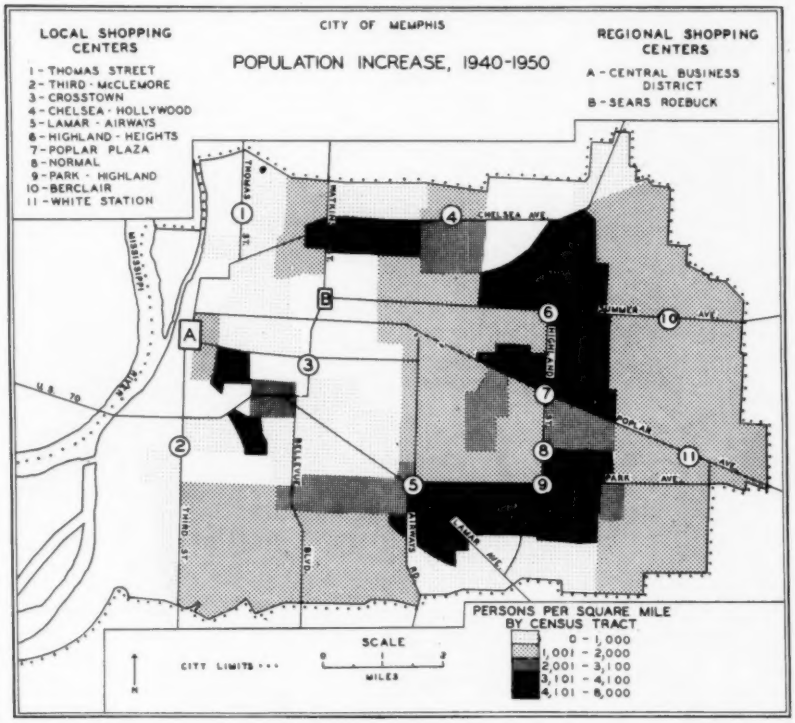

FIG. 2

SOURCES OF INFORMATION

The more important sources of information which may be used in analyzing trade areas can be divided into three classes. These are (1) census reports, (2) agencies both public and private, and (3) observation and interview.

Census Reports. One of the most important sources of information dealing with trade area analysis is the Decennial Census reports. For housing information these reports cover 209 cities which in 1940, or in a subsequent census prior to 1950, had a population of 50,000 or more. For information on population these reports covered eight cities in 1910, eight in 1920, eighteen in 1930, sixty in 1940, and sixty-two in 1950.[3] For housing information the data are

[3] U. S. Bureau of the Census, *Seventeenth Census of the United States: 1950. Population. Memphis, Tennessee, Census Tract Statistics,* Vol. III (Washington: Government Printing Office, 1952), p. 1.

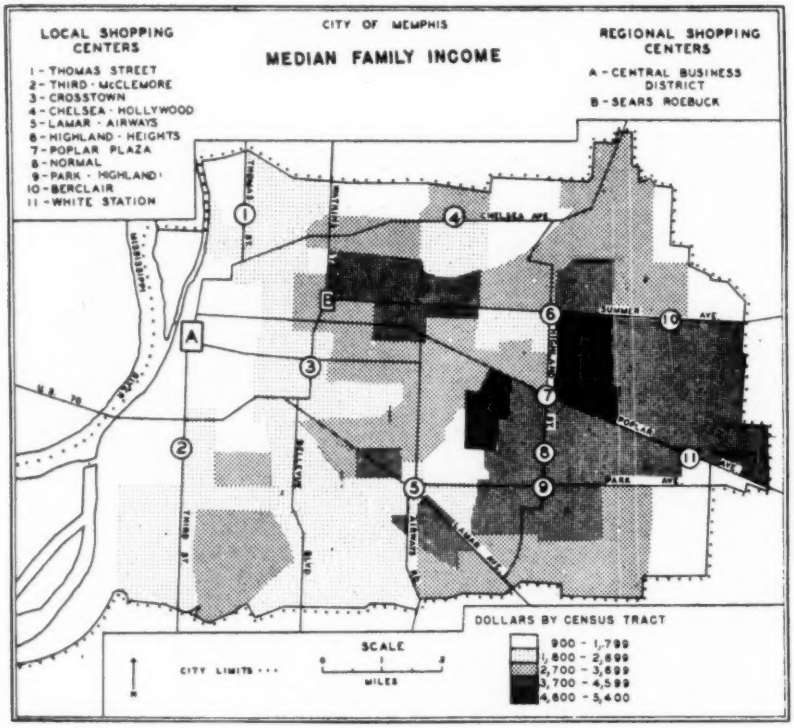

Fig. 3

presented both by block and by census tracts.[4] For population the data are presented by census tracts only. These tracts are intended to remain unchanged from census to census. However, as cities annex new areas, or as population increases within the census tracts, boundary changes are made, and thus caution is necessary in making comparisons.

Agencies. Various agencies both public and private often have the answers to many of the marketing researcher's questions, or at least the raw material from which the answers can be obtained. This kind of source is especially valuable not only in supplement-

[4] Census tracts are defined as "small areas, having a population usually between 3,000 and 6,000, into which certain large cities (and sometimes their administrative areas) have been subdivided for statistical and local administrative purposes." *Ibid.*

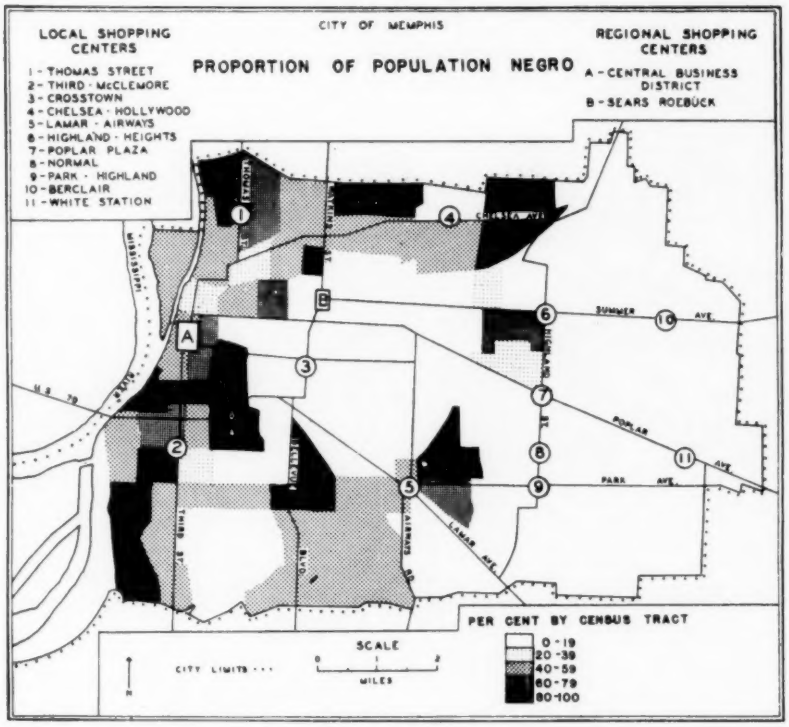

FIG. 4

ing census reports but more particularly in getting information during the inter-census periods. The city of Memphis may be used to illustrate this.

Like many other urban centers in the United States, Memphis has experienced a tremendous growth since the 1950 census. Thus in 1957 agencies other than the U. S. Census Bureau must be contacted to get recent marketing information. For example, if the researcher desires population distribution in Memphis, he may get this information from such sources as the Memphis Street Railway Company. This firm maintains a map with current data on housing units in all parts of the city. Thus by determining the number of housing units per block or census tract, a fairly accurate picture of

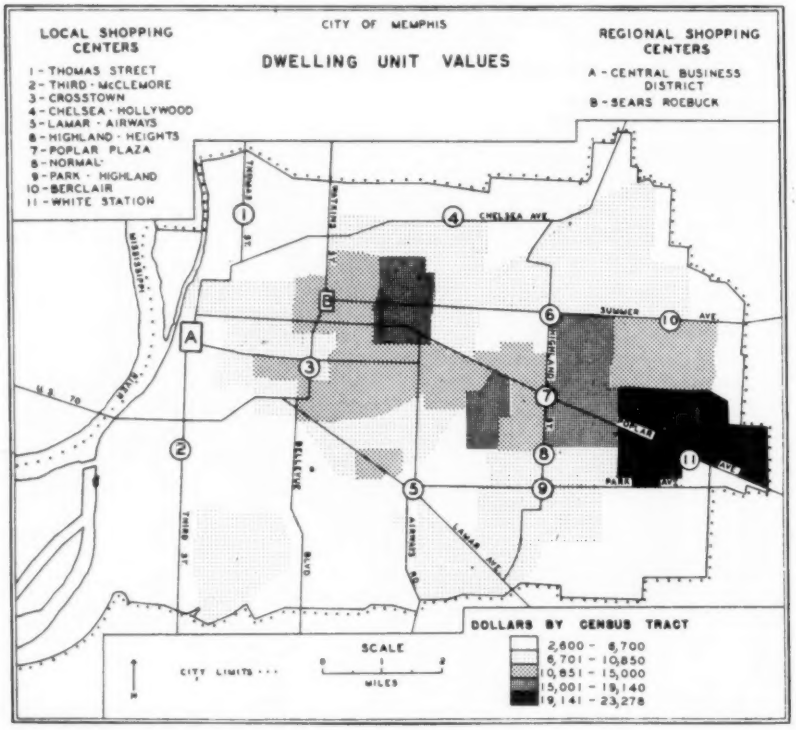

Fig. 5

population density and distribution in this urban center can be obtained. Population data may also be gathered from public utility companies, building permit records, tax records, and similar sources.

Observation and Interview. Observation and interview are no less important in marketing research than are the reports of the U. S. Census Bureau and information from public and private agencies. Moreover, like these agencies, they supplement census reports and, in the inter-census periods, largely take their place.

In collecting information by interviews sampling techniques have been found to be quite satisfactory. For example, in gathering marketing data some researchers have interviewed every tenth

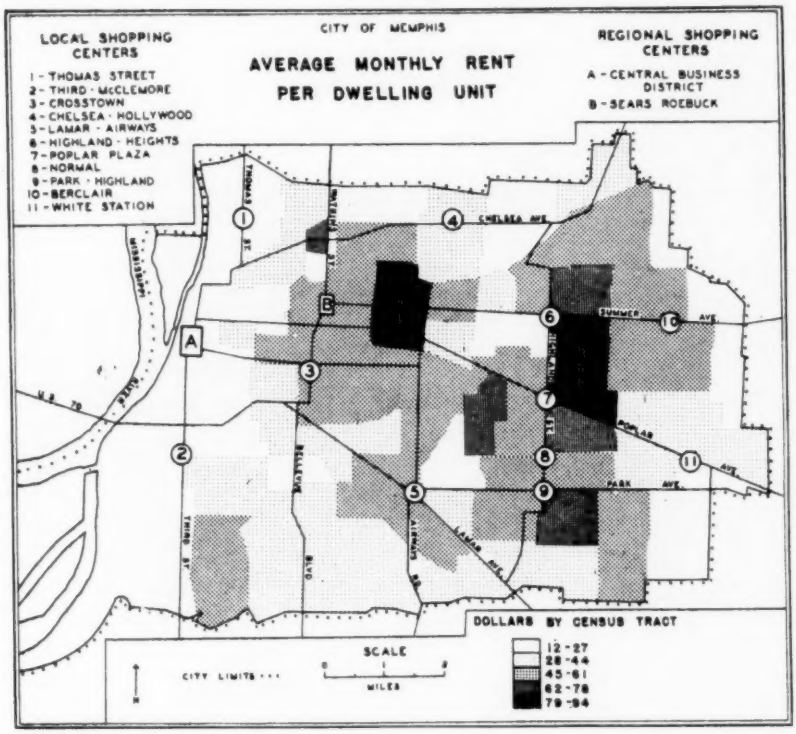

FIG. 6

home for such information as retail sales, family income, and buying habits and preferences.

PRESENTATION OF FINDINGS: MEMPHIS AS A TYPE STUDY

Two examples for the city of Memphis are given in this study in considering a geographic method of presenting findings concerning the trade areas of local shopping centers. The first of these deals with an overview of the trade area complex of local shopping centers in the city as a whole; the second presents an analysis of a specific trade area. These examples are not meant to be intensive or exhaustive studies but are used merely to suggest method and

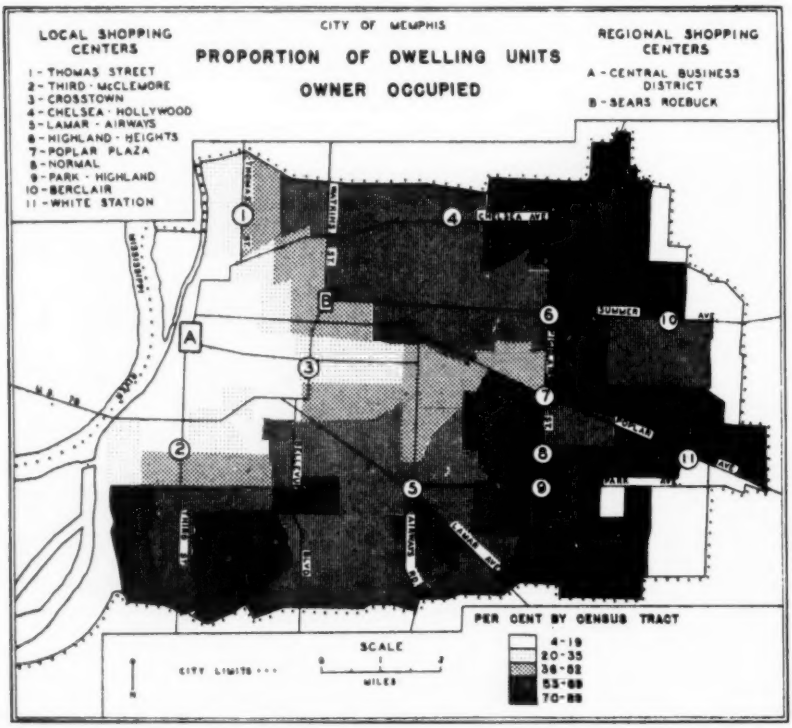

Fig. 7

technique. Maps, as one of the most important tools of geography, are used to present findings whenever possible.[5] Also, it should be mentioned that since method of presentation and analysis is being emphasized rather than current information, the major portion of the data has been obtained from the somewhat obsolete 1950 census reports.

Overview of the Trade Area Complex of Local Shopping Centers in Memphis. The number and distribution of people within a city are of paramount importance in analyzing the various trade areas within its boundaries. In considering Memphis as a whole, it is apparent that the western part of the city near the Central Business District is much more densely populated than the remainder

[5] Most of these maps show the location of selected shopping centers.

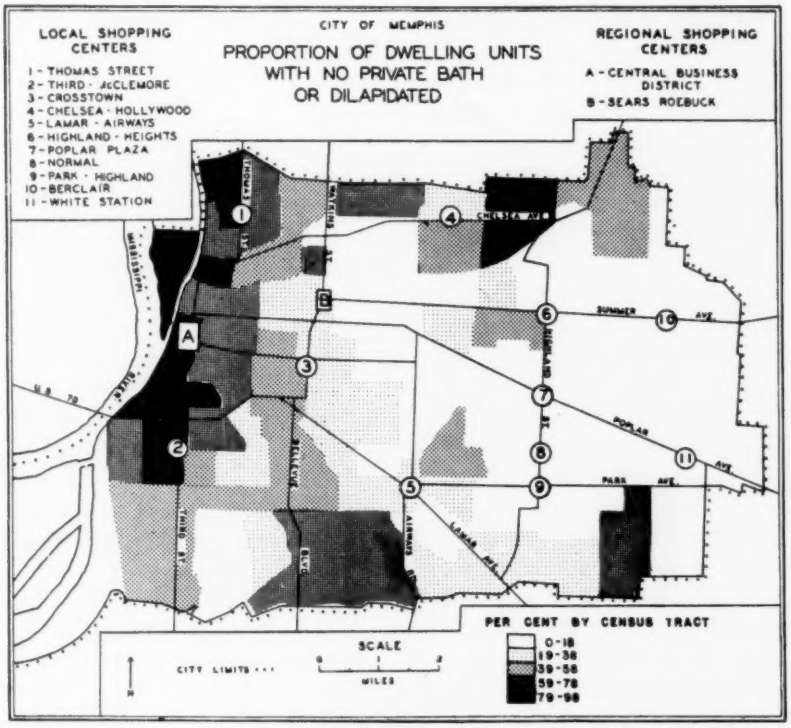

FIG. 8

of this urban center (Fig. 1). Thus from the standpoint of population alone the local shopping centers in the western part of the city are more favorably located than are centers in other parts of the city. However, shopping centers in east Memphis are very favorably located relative to areas that are increasing in population (Fig. 2).

Many trade areas have high population densities but low income per family (Fig. 3). This is particularly noticeable in the western part of Memphis where the proportion of Negroes is high (Fig. 4). Conversely, other trade areas have low population densities but high income per family. This condition exists especially in the eastern part of the city, where, incidentally, the proportion of Negroes is low.

Other readily available census data, which are pertinent to the trade area analysis of local shopping centers, are dwelling unit values, average monthly rent per dwelling unit, proportion of dwelling units owner occupied, and proportion of dwelling units with no private bath or which are dilapidated. These data reflect the buying power and general economic health of many local trade areas of the city.

High dwelling unit values, as well as high monthly rent per dwelling unit, reflect the higher buying power per family in the central and eastern parts of Memphis (Figs. 5 & 6). Similarly, a high proportion of dwelling units that are owner occupied in the southern and eastern parts of the city reflects a high degree of economic stability in these areas (Fig. 7).

Finally, it is noted that the economic health of certain areas in the western and northern parts of Memphis is relatively poor as measured by the sub-standard condition of the homes (Fig. 8). For the most part these areas are occupied by Negroes. It is obvious that shopping centers in these areas are less favorably located than those centers in other parts of the city.

Thru observation and interview it is evident that the older local shopping centers in Memphis, for the most part, lack ample parking facilities. These centers were built before the use of automobiles was general and are now relatively inaccessible.

Most of the newer shopping centers with sufficient parking space are located in the recently built-up areas of the city, which, by and large, are in east Memphis. It may be added that all shopping centers located along the more heavily travelled streets (Fig. 9) have a decided advantage in accessibility, provided these centers have enough parking space.

Trade Area Analysis of the Poplar-Highland Shopping Center of Memphis as a Type Study. The Poplar-Highland shopping center of Memphis is located six miles east of the Central Business District and four miles west of the eastern city limits. In general it may be said that the trade area of this center is located east of Parkway (Fig. 1) and includes most of east Memphis.

As a result of the eastward expansion of the urban area and the building of thousands of new homes in the past fifteen years, an estimated 150,000 people now live in this area. It is significant to note that this figure represents more than the population of either Jackson, Mississippi, or Little Rock, Arkansas, both the

largest cities in their respective states, and both competing with Memphis for retail trade in the Mid-South area.

The immediate vicinity of the Poplar-Highland shopping center has a relatively low population density with only four or five thousand people per square mile by census tract (Fig. 1). How-

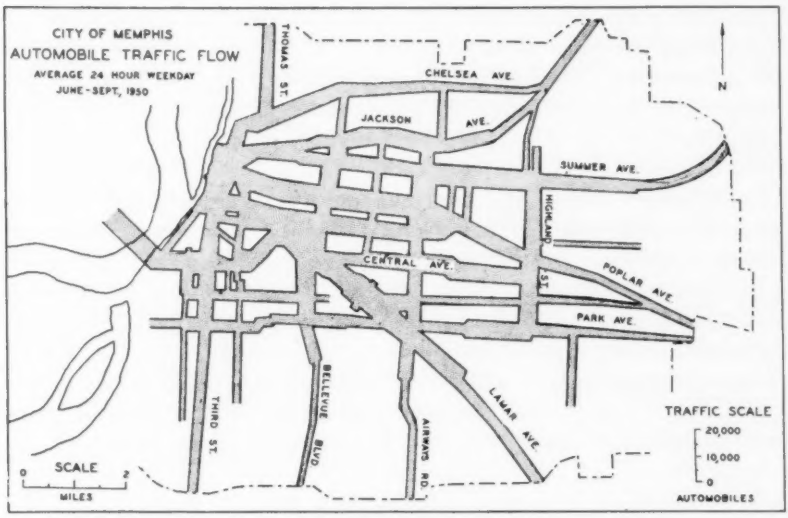

FIG. 9

ever, the growth of population (Fig. 2) in east Memphis in the last decade indicates a bright future for this center. Several multi-unit apartment buildings have been erected adjacent to the center only recently. These include a 150-unit development near the southeast corner of Highland and Poplar and a 66-unit development immediately west of the center. These two developments alone increased the potential customer supply of the shopping center by approximately nine hundred persons.

Within this trade area are located census tracts with the highest median family income in the city (Fig. 3), and the highest monthly rent (Fig. 6). The economic stability of the trade area is reflected in the large proportion of the dwelling units that are owner occupied (Fig. 5) and the good condition of the homes (Fig. 7). Finally, it is evident from observation that all parts of the trade area are easily accessible by automobile to the shopping center.

It may be pointed out that the researcher may wish to make a more intensive study than is presented here. For example, he may want to make a block analysis rather than a census tract study. This may be true especially if he wishes to analyze the trade area of a particular establishment within the shopping center. In the latter case the researcher may desire to establish a rather definite boundary for the trade area. For this and other pertinent information the establishment and its customers become primary sources of information. Consequently, observation and interview become much more important techniques in gathering data.

CONCLUSIONS

The above trade area analyses merely suggest an approach to one facet of marketing research. With the phenomenal growth of urban centers, new trade areas and, consequently, new shopping centers are rapidly appearing on our landscape. Old trade areas and old shopping centers stand in need of re-evaluation. These conditions not only present an excellent opportunity but a direct challenge for geographers who wish to enter an applied phase of their discipline. The future of marketing geography will depend on geographers themselves. Opportunity knocks. The challenge is here.

GREAT LAKES TRAFFIC: AN ASPECT OF COMMERCIAL GEOGRAPHY

DONALD R. PETTERSON
Northwestern University

Altho the importance of the Great Lakes as an arterial waterway is generally recognized, the tremendous volume of Lake traffic is seldom appreciated. Now that the new St. Lawrence Seaway is well along toward completion, it is very worthwhile to examine some of the salient points of Great Lakes traffic as it now exists. In 1955 the 209,290,710 tons[1] carried on the Great Lakes was greater

[1] Unless otherwise stated the tonnages are specified in short tons of 2,000 pounds. Various tonnages: Long tons—2,240 pounds; Short tons—2,000 pounds; Metric tons—2,204.6 pounds; Gross registered tonnage—space within ship's hull and enclosed super-

than the 120,514,059 tons of the Atlantic, Pacific, and Gulf ports of North America. Until 1955 the tonnage carried thru the Sault Ste. Marie canal between Lakes Superior and Huron exceeded the combined tonnages of *both* the Panama and Suez Canals. The 114,555,298 tons passing thru Sault Ste. Marie Canal in the eight months plus between April 8 and December 16, 1955, exceeded the entire annual tonnage of either the Panama or Suez Canal. Undoubtedly one of the most significant factors accounting for the relative size of this tonnage is the location of the Great Lakes between the greatest sources of iron ore and grain in the continent on the one hand, and the largest coal fields, the greatest steelmaking centers, and the richest consuming population in North America on the other hand. In 1955, 99.5 per cent of the total tonnage of the Lakes consisted of iron ore, coal, stone, petroleum, and grain, all of which are relatively low in value in relation to their weight and size.

In 1955 the Great Lakes fleet carrying capacity consisted of 694 vessels of 4,970,947 deadweight tons. Of this tonnage, 418 vessels or 73.37 per cent were of United States registry, and 276 vessels or 26.63 per cent were of Canadian registry. In addition, there were 119 foreign vessels engaged in the Great Lakes-Atlantic trade. These vessels were in almost constant use during 1955 as exemplified by the 27,767 vessels which passed thru the Detroit River (the waterway connecting Lake St. Clair and Lake Erie) during the 278 day navigation season—an average of one vessel every fifteen minutes.

Since the Great Lakes are situated in a portion of North America where winter temperatures are sub-freezing and navigation is blocked by ice for over three months of the year, a minimum time in port and almost continuous operation of vessels during the navigation season is necessary to maintain such large traffic. Steel plants using Lake Superior iron ore must store up enough during the summer to last thru the following winter. As a result the average loading time in the upper lake ports in 1955 was seven hours and 21 minutes, while the average unloading time in the lower lake ports was ten hours and three minutes. The fastest loading record of that year was one hour and fifteen minutes, an average of 6,065

structures in units of 100 cubic feet; Net registered tonnage—gross tonnage minus engine, fuel, quarters, etc. Multiply 1.5 for Deadweight tonnage. (From Paul V. Horn. *International Trade; Principles and Practices,* Prentice-Hall, Inc., New York, 1952.)

tons per hour. By comparison, in the port of New York the average time to load 10,000 tons of iron ore was approximately two days. The rapid turn-around in ports and relatively continuous operation of lake vessels during the navigation season are enabled by mechanized loading and unloading facilities at all major ports, as well as by such navigational aids as radar, Sperry gyro-compasses, ship-to-shore radio-telephone communications, and radio-beacon and weather bureau stations on shore.

The low cost of lake transport is a major factor accounting for both the great volume and the character of lake traffic in a portion of North America where excellent railroad facilities are also available. Iron ore cargoes are carried an average distance of 800 miles on the lakes at about one-seventh of the railroad charges for a comparable distance. In fact, it is about as expensive to carry iron ore the short distance from the Mesabi Mine to the docks at Duluth-Superior by railroad ($1.034 per ton) as it is to transport the ore the rest of the way to the steel mills by ship.[2] While important for bulk cargo such as iron ore, this cheap, but relatively slow lake transport is not attractive for finished industrial products or perishable commodities. Of relatively high value, these are able to absorb the high costs of rapid transportation.

Iron Ore

Iron ore was by far the most important commodity shipped on the Great Lakes in 1955, and the 89,169,973 gross tons[3] of iron ore constituted 47.7 per cent of the total lake tonnage. The United States accounted for 76.5 per cent of the total iron ore shipments, while the remaining 23.5 per cent originated elsewhere. Canada accounted for 11.3 per cent of the remainder, followed in order by Venezuela, Peru, Sweden, Chile, Brazil, and Liberia. This foreign ore is all produced close to cheap water transportation and requires a minimum of land transportation. Two of the most interesting and recently developed iron exporting ports are Seven Islands, Quebec, which taps the Labrador fields north of the St. Lawrence River, and Monrovia, Liberia, which taps the Bomi Hills iron fields about eighty miles inland.

Most of the United States ore that enters Great Lakes traffic

[2] In 1955 the price per ton of iron ore (51.5 per cent pure) was $10.25 at the lower lake ports.

[3] 9,870,369 net tons.

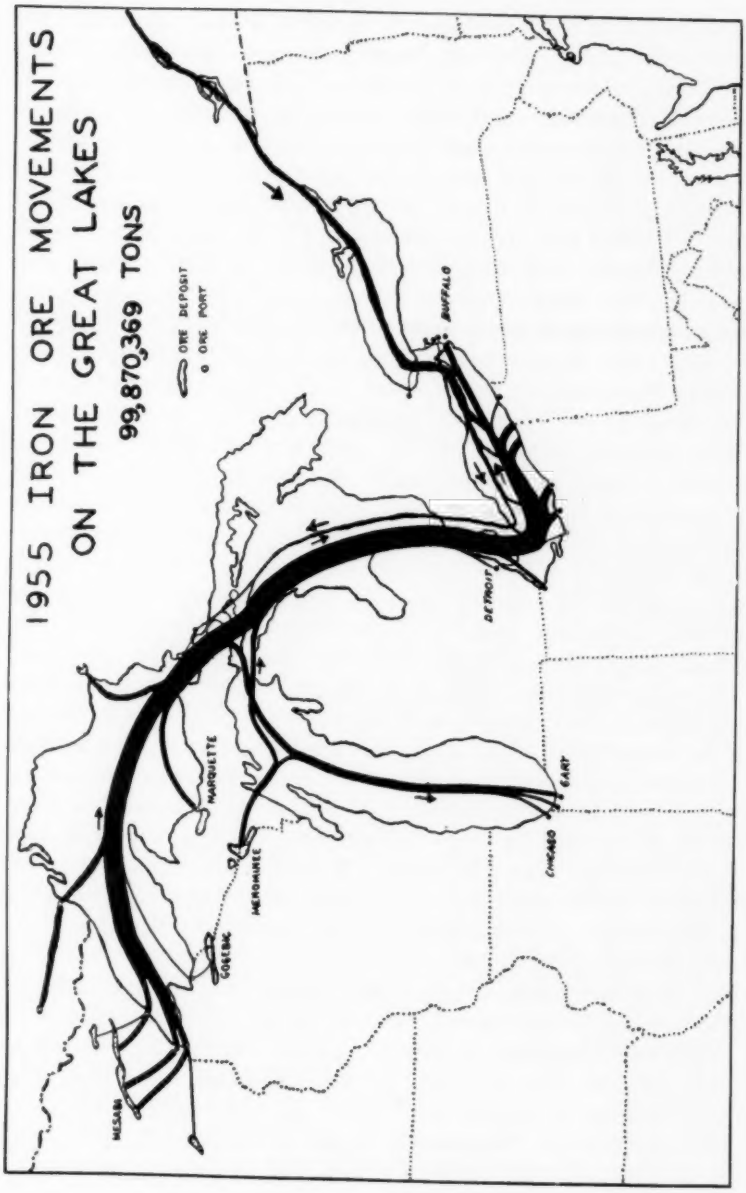
1955 IRON ORE MOVEMENTS
ON THE GREAT LAKES
99,870,369 TONS
ORE DEPOSIT
ORE PORT
BUFFALO
DETROIT
CHICAGO
GARY
MARQUETTE
MENOMINEE
GOGEBIC
MESABI

Fig. 1

is mined within a hundred miles of the lakes, notably at the Mesabi, Gogebic, Vermillion, Cayuna, Menominee, and Marquette ranges in the United States. Despite an annual winter shut-down due to freezing temperatures and heavy snowfall, the Mesabi Range is the world's single leading producer of iron ore, and accounted for 45.5 per cent of the ore shipped on the Great Lakes in 1955. Its relative importance is the result of a combination of favorable factors including the tremendous size of the ore body and the comparatively thin over-burden of glacial drift or friable slate. This overburden has been removed by steam shovels without initial blasting, resulting in the largest open-pit mine in the world: two and a half miles long, one mile wide, and three hundred and fifty feet deep. Moreover, the ore consists primarily of high-grade hematite of about 50 per cent metallic iron with comparatively few impurities. Mining and transporting operations of Mesabi Iron ore are almost completely mechanized. Gigantic steam shovels, specially designed freight cars, and lake freighters move the ore cheaply and quickly from mine to blast furnace. Most of the Mesabi iron ore is shipped from the port of Superior where the Great Northern Railroad has the world's largest group of ore docks which are capable of loading 24 freighters in 24 hours. In 1955, 33,976,275 gross tons were shipped from these specialized docks.

The remaining American iron ore mines in the Lakes region are principally shaft mines, some having a depth of over 2,000 feet beneath the surface. Here work may continue thruout the winter. This advantage, however, is offset by costs which are about 3.4 times higher than open-pit mining. Moreover, little ore moves from the shaft mines during the winter season because the lakes are frozen at that time. The bulk of the ore from these mines is shipped to the Great Lakes waterway thru the ports of Two Harbors, Ashland, Marquette, and Escanaba, all of which are comparatively close to the iron ore mines.

The two chief areas to which lake-borne iron ore was shipped in 1955 were on Lake Erie (57.8 per cent) and Lake Michigan (24.4 per cent). Whereas Lake Michigan's imports of iron ore were concentrated into the Chicago-Gary region, Lake Erie imports of iron ore were spread to include Cleveland (13.4 per cent of the total lake-borne iron ore), Conneaut (12.1 per cent), Ashtabula (7.4 per cent), Buffalo (6.3 per cent), Detroit (5.0 per cent), as well as several smaller lake ports.

COAL

Coal was the next most important commodity on the Great Lakes and shipments amounted to 53,378,385 tons in 1955. It made up 25.4 per cent of the total lake tonnage and was the principal lake traffic moving from east to west. About 72.4 per cent of the coal

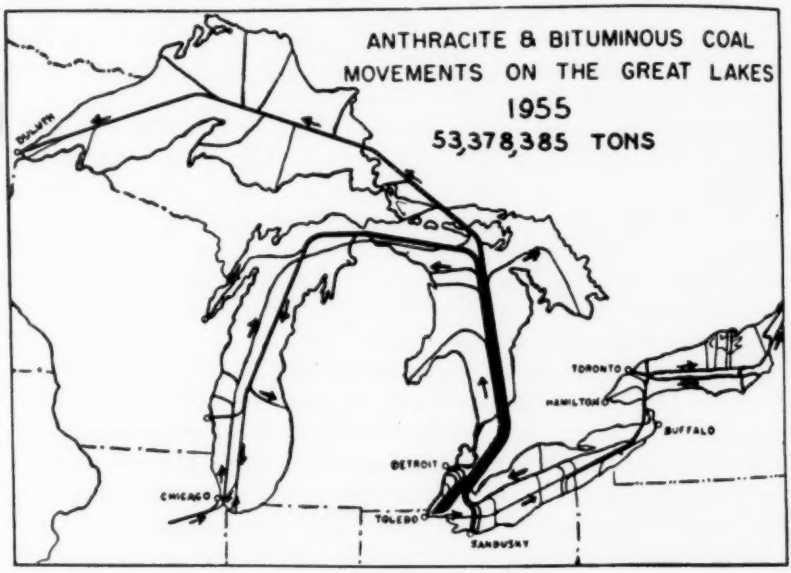

FIG. 2

shipments consisted of high-grade bituminous coal from the Northern and Middle Appalachian Fields. From these fields, which are located within a few hundred miles of Lake Erie, come excellent coking, heating, and steaming coal. The coal seams within these fields cover a large area and are comparatively free from interbedded shale and slate. The seams vary in thickness from a few inches to ten or more feet. In the larger seams mechanization is possible which considerably reduces the costs of mining this coal as compared with some other deposits.

Lake Erie ports, by virtue of their relative proximity to the Northern and Middle Appalachian coal fields, were the most important exporters of coal in 1955 and accounted for 86 per cent of the lake coal tonnage. United States ports on Lake Erie handled

45,184,966 tons of coal in 1955 of which 23.9 per cent went to Canada. Over half of the Canadian-destined coal went eastward thru the Welland Canal, while the remainder went to the northern shores of Lake Erie, the eastern shores of Lake Huron, and to Lake Superior. The principal United States destinations were the Detroit, Chicago-Gary, and Lake Superior areas. Toledo, the leading coal port on the Great Lakes in 1955, handled 58 per cent of the bituminous coal moved on the Lakes. Toledo is the fourth largest rail center in the United States and a terminus of railroads from the Middle Appalachian coal field.

The remaining coal shipments on Lake Erie included anthracite coal from northeastern Pennsylvania as well as the lower grade bituminous coal from Illinois and Indiana. Despite the proximity of the Chicago-Gary bituminous consuming center to the Illinois-Indiana coal fields, this coal is not in demand there as it does not make high-quality coke. Good coking coal from the more distant Northern and Middle Appalachian producing fields moves in to supply the Chicago-Gary demand.

On Lake Ontario in 1955 a total of 2,800,930 tons of bituminous coal was shipped to Canada from the ports of Rochester and Oswego in New York, and Sodus Point in Pennsylvania. Anthracite coal shipments on Lakes Ontario and Erie had declined steadily over a long period of time, but in 1955 a sharp increase occurred. This might be explained as a result of the increased use of anthracite in connection with the taconite benefication plants in the Lake Superior iron ore mining regions.

LIMESTONE

Shipments of limestone, the third most important commodity in the commerce of the Great Lakes, amounted to 29,722,293 tons and accounted for 14.2 per cent of the total traffic in 1955. It also moved the shortest distance of any of the principal lake commodities. Most of the limestone came from northern Michigan, near the ports of Calcite, Stoneport, Alpena, Rockport, Port Dolomite, and Port Inland. The limestone deposits consist of very pure, high calcium stone, close to the surface. Since the stone is used in crushed form, quarrying is done primarily by blasting and the loading is mechanized. Because little hand labor is employed, in contrast with the dimensional stone industry, production costs as well as shipping costs to the steel mills, are comparatively small.

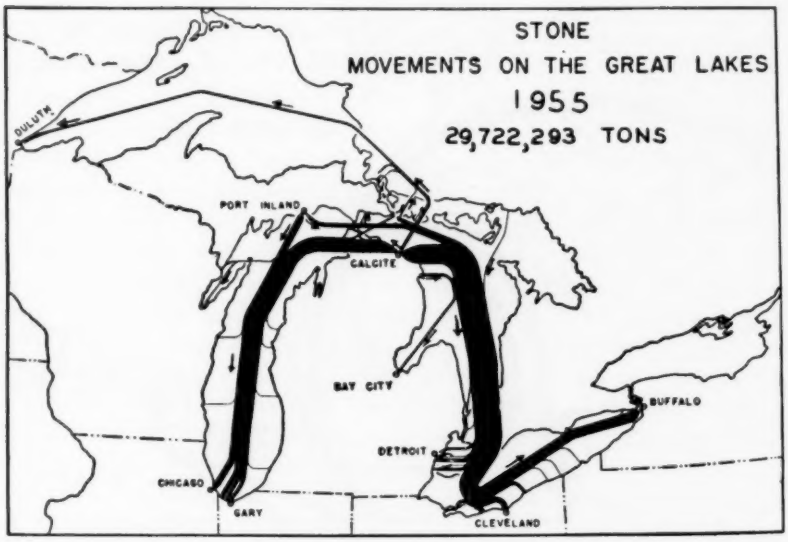

FIG. 3

PETROLEUM

Petroleum shipments accounted for 15,531,930 tons or 7.4 per cent of the total lake shipments in 1955. During this year the New York State Barge Canal, between Buffalo and Albany, handled 20.6 per cent of the petroleum shipments on the Lakes, which was an increase over the preceding four years. The Sault Ste. Marie Canal, on the other hand, handled only 600,976 tons of crude oil in 1955, which can be attributed to the increased mileage of newly constructed pipelines. Shipments of petroleum derivatives thru the Sault Ste. Marie Canal expanded, however, to 762,198 tons, an increase of 20.9 per cent compared with the preceding year. In 1955 there were 99 petroleum vessels in operation on the Great Lakes. Of these, 40 were Canadian, 27 were United States, and 32 were New York State barges. These vessels and barges were designed for carrying petroleum products rather than bulk petroleum.

GRAIN

The total grain traffic of the Great Lakes amounted to 10,787,786 tons (398,250,633 bushels), or 5.1 per cent of the total lake tonnage in 1955. Fort William-Port Arthur accounted for 66 per cent of the

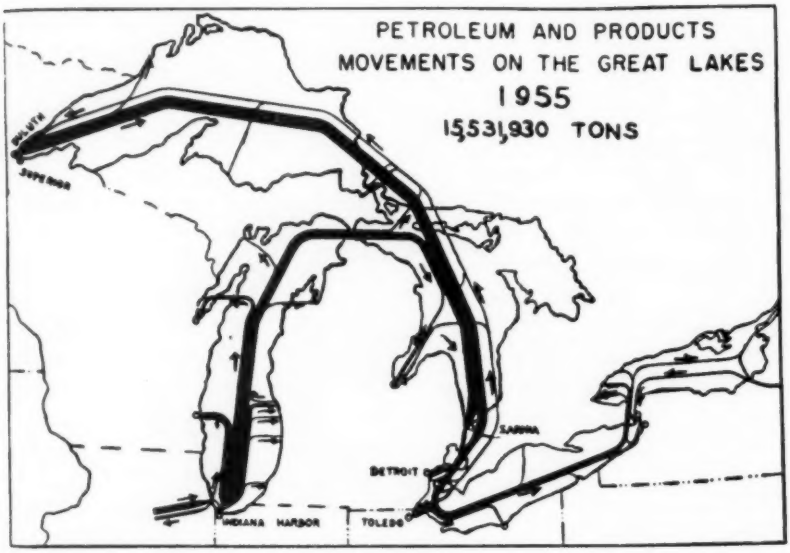
PETROLEUM AND PRODUCTS
MOVEMENTS ON THE GREAT LAKES
1955
15,531,930 TONS
DULUTH
SUPERIOR
DETROIT
SARNIA
INDIANA HARBOR
TOLEDO

Fig. 4

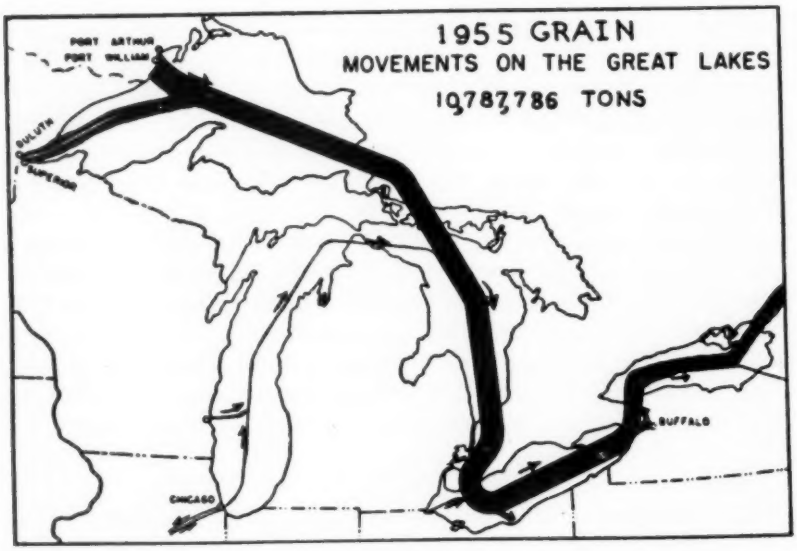
1955 GRAIN
MOVEMENTS ON THE GREAT LAKES
19,787,786 TONS
PORT ARTHUR
PORT WILLIAM
DULUTH
SUPERIOR
BUFFALO
CHICAGO

Fig. 5

total grain traffic, and were followed by Duluth-Superior with 29 per cent, Chicago with 2.3 per cent, Toledo with 2.2 per cent, and Milwaukee with .5 per cent. Spring Wheat amounted to 61.8 per cent of the grain tonnage, barley 21.5 per cent, oats 6.3 per cent, flaxseed 5.4 per cent, and rye 3.6 per cent. The remaining grain consisted of corn, soy beans, buckwheat, and sample grain.

Most of the grain comes from the sparsely populated Spring Wheat Region west of Lake Superior between central Minnesota and the Prairie Provinces of Canada as far west as the Rocky Mountains. This region is particularly favorable for grain production. Between ten and twenty inches of annual precipitation occurs primarily during the short hot summer and the winters are long, cold, and comparatively dry. Grass, the natural vegetation, has formed a deep fertile chernozem soil which is one of the most productive soils in the continent if sufficiently watered. The surface of the region, which includes many old lake beds left by the retreating glacier, is relatively level or gently rolling. On such a surface it has been easy to operate agricultural machinery as well as to construct railroads to move the abundant grain production to the lake ports.

CONCLUSION

It should be emphasized that altho the total Great Lakes tonnage is large, such tonnage is limited primarily to those commodities which are comparatively cheap in relation to their size and weight. The location of the Lakes in relation to the raw material sources and the industrial and consuming centers, has made it possible for cheap high-bulk products to be transported at low cost via the Great Lakes. The evolution of highly specialized techniques of loading and unloading and the large carrying capacity of the Lake vessels have facilitated the expansion of Great Lakes commerce to its present gigantic volume. Lake traffic will probably continue to increase altho technological advances such as the transportation of coal by pipe-lines which was initiated in 1955, will undoubtedly have an influence upon the nature and pattern of lake commerce.

The completion of the St. Lawrence Seaway between the Great Lakes and Montreal, due in 1959, will bring a further increase and greater diversity of the traffic of the lakes. The Seaway will bring an increase of foreign iron ore and petroleum products imported directly to the Lake ports of North America. Grain exports will

move more swiftly and directly to foreign ports thru the Seaway. Coal and limestone, however, will be affected the least by the Seaway. The hydro-electric power which will be obtained along the St. Lawrence Seaway will lead to the expansion of the New York-Ontario-Quebec "industrial triangle," thereby leading to an increase in the consuming capacity of the area. With the opening of the Seaway the nature of the products carried on the Great Lakes, especially by foreign ships, is likely to become more diversified, but the great bulk of the Great Lakes commerce will continue to be made up of iron ore, coal, stone, petroleum products, and grains.

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THE EVIDENCE FOR THE USE OF FISH AS FERTILIZER IN ABORIGINAL NORTH AMERICA

ERHARD ROSTLUND
University of California, Berkeley

Most of the students in American schools seem to have learned at one time or another that the Indians used to put fish in the ground to fertilize their corn fields. Over a period of about a decade I have made a point of asking the members of a geography class whether they knew of this Indian practice, and every year more than three quarters of them have said that they had learned about it in elementary school. Further discussion has brought out two other points: the students generally believe that the practice was not rare but widespread among all the farming tribes, and second, that the Indians taught the American colonists this method of using fish as fertilizer.

It is not strange that this belief has become fixed in our folk lore, for many textbooks tell us that the Indians made use of fish in this manner, and the textbook writers in their turn have been influenced by eminent scholars. The most sweeping statement I

know is that of Dr. Clark Wissler, "Artificial fertilization was practiced from Nova Scotia to Chile. One method, widely distributed on both continents, was the placing of fish in the maize hills."[1] In striking contrast is Professor Regina Flannery's conclusion that the only area in the Algonquin culture region in eastern North America from which the method has been reported is southern New England, and that it is questionable whether the practice was aboriginal.[2] This conflict in statements suggests the need of re-examining the evidence in the primary sources.

The first and rather obvious point to make is that fish, a valuable food, would hardly have been used as manure unless it was so abundant that people could easily catch more than they could eat. Such abundance normally occurs only along certain coasts, for example that of Peru, or in rivers where fish ascend from the sea to spawn, as in the streams of the Atlantic seaboard of the United States, which in early times were annually visited by enormous numbers of shad, alewife, and other members of the herring family. The interior of eastern North America, which constituted by far the greater part of the aboriginal farming area, was not rich enough in fish to warrant its use as fertilizer. It is no accident that reports from different parts of the world of the early use of fish as manure all come from regions near the sea, so Wissler's phrase, "widely distributed on both continents," is misleading: we are dealing at the most with a coastal, not a continental, distribution.

How old the custom of manuring with fish might be is hard to say. Some of the European "encyclopedias" and "handbooks" of agriculture published in the seventeenth and eighteenth centuries speak of the practice as known since "time immemorial," not a very precise date, but we have definite proof that the method was used in England as early as 1620—and no doubt much earlier, for in 1620 it was described in print by Gervase Markham.[3] We thus know that fields had been manured with fish in Europe before the Pilgrims landed at Plymouth Rock.

Erroneous Citation of Certain Early Sources

There is no question about the use of fish as fertilizer by the

[1] Clark Wissler. *The American Indian*, New York, 1922, p. 23.

[2] Regina Flannery. "An Analysis of Coastal Algonquian Culture," *Anthropological Series* No. 7, The Catholic University of America, Washington, D.C., 1939, pp. 10-11.

[3] Gervase Markham. *Farewel to Husbandry* (London, 1620), 1684, p. 48.

colonists in New England in the seventeenth century or the more widespread use of the method in later time. But what needs to be pointed out is that some of the early sources, which have been cited as proof of aboriginal manuring with fish, refer to the English settlers, not to the Indians. These references are found in the writings of John Pory, Captain John Smith, John Winthrop (the elder), Thomas Morton, and Edward Johnson.[4] Three early works —*New England's Memorial*, by Nathaniel Morton (1669), *A Chronological History of New England*, by Thomas Prince (1736), and *George Mourt's Relation* (1622)—have sometimes been referred to as primary sources, but they are not, at least not as far as comments on Indian farming are concerned, for they are all more or less derived from the records of William Bradford and Edward Winslow of the Plymouth colony.

Several writers, notably F. W. Hodge in the widely known *Handbook of American Indians* (Bureau of American Ethnology, Bulletin No. 30, 1907), refer to Lescarbot's claim that the Indians of New England and Florida "manure their fields with shellfish."[5] But Lescarbot, who spent only one year in the New World and all of it in French Acadia, depends on Samuel de Champlain for his information on New England and on René Laudonnière for the data on northern Florida; and these men, both of whom wrote clear and detailed descriptions of Indian farming methods, not only make no mention of the use of fish, shellfish, or any other manure, but Laudonnière says point-blank that the Indians he observed never fertilized their land.[6]

The Negative Evidence

It is impossible to cite all of the primary sources, but it may be said that the earliest and most complete descriptions of Indian

[4] *John Pory's Lost Description of Plymouth Colony* (ca. 1622), edited by C. Burrage, Boston, 1918, p. 38. Captain John Smith. "Advertisements for the Unexperienced Planters" (London, 1631), *Travels and Works*, edited by Edward Arber, Edinburgh, 1910, p. 952. John Winthrop. *A Journal of the . . . settlement of Massachusetts, 1630 to 1644*, Hartford, 1790, p. 40. Thomas Morton. "New English Canaan (London, 1632)," *Tracts and Other Papers*, collected by Peter Force, Washington, D.C., 1838, vol. 2, p. 60. Edward Johnson. *Wonder-Working Providence* (London, 1654) New York, 1910, p. 114.

[5] Marc Lescarbot. *History of New France* (Paris, 1609), Toronto, 1907, vol. 3, p. 248.

[6] Samuel de Champlain. *Works*, edited by H. P. Biggar, vol. 1 (Paris, 1613), Toronto, 1922, p. 327. René Laudonnière. "History of the First Attempt of the French to Colonize Florida" (Paris, 1586), B. F. French. *Historical Collections of Louisiana and Florida*, New York, 1869, p. 174.

farming that we have are found in the reports of Laudonnière and Jacques Le Moyne on the Southeast; in the relations of North Carolina and Virginia by Thomas Hariot, Henry Spelman, and Captain John Smith; and in the narratives of the middle colonies and New England by Peter Lindeström, Adriaen van der Donck, William Woods, Roger Williams, and Champlain. Of a somewhat later date are the excellent accounts given by Pénicaut, Le Page Du Pratz, James Adair, William Bartram, Mark Catesby, Robert Beverley, and Peter Kalm—to name only some of the outstanding reports. The early record of aboriginal agriculture is indeed a rich one, and, for present purposes, the most significant fact is that in the entire record there is virtually no reference to the use of fish as fertilizer. Furthermore, like Laudonnière, some of the early observers state positively that the Indians used no fertilizer of any kind. Hariot says of the Secotan in North Carolina, "The ground they never fatten with muck, dung, or any other thing." The Narraganset tribe planted corn without fish, according to John Winthrop (the younger), and similar statements about other New England Indians are made by Edward Winslow and William Wood. The use of fertilizers is denied for the New York Indians by van der Donck, for the Hurons by Sagard, and for the Delaware and Iroquois by Loskiel.[7]

The Affirmative Evidence

So far as I know, there are only three statements in the primary sources that might be regarded as affirming the aboriginal use of fish as fertilizer. In April, 1621 the Pilgrims of Plymouth colony, according to Bradford, "began to plant their corn, in which service Squanto stood them in great stead, showing them both the manner how to set it, and after how to dress and tend it. Also he told them except they got fish and set with it, in these old grounds, it would come to nothing." (Squanto or Tisquantum is believed to have

[7] Laudonnière, *loc. cit.* Thomas Hariot. *Narrative of the First English Plantation in Virginia* (London, 1588), 1893, p. 23. John Winthrop (the younger), "Letter," *Collections, Massachusetts Historical Society,* 4th series, vol. 6, 1863, p. 515. Edward Winslow. "Good News From New England" (London, 1624), *The Story of the Pilgrim Fathers,* edited by Edward Arber, London, 1897, p. 594. William Wood *New England's Prospect* (London, 1634), Boston, 1898, p. 13. Adriaen van der Donck. "Description of New Netherlands" (Amsterdam, 1656), *Collections, New York Historical Society,* 2nd series, vol. 1, 1841, p. 209. Gabriel Sagard. *Histoire du Canada* (Paris, 1636), 1866, vol. 1, p. 235. G. H. Loskiel. *History of the Mission of the United Brethren among the Indians in North America,* London, 1794, p. 66.

been the sole survivor in 1621 of the Indian tribe formerly living in the vicinity of Plymouth.) Winslow, describing the same planting, says "According to the manner of the Indians we manured our grounds with herring, or rather shads, which we have in great abundance." John Winthrop (the younger, governor of Connecticut and son of John Winthrop the elder of the Massachusetts Bay Company) is thought to be the author of the third statement, "Where the ground is bad or worn out, the Indians used to put two or three of the forementioned fishes (alewives) under or adjacent to each cornhill."[8]

All of the three statements require comment. The third one appears in an article contributed to the Royal Society of London by a "Mr. Winthorp," who presumably was John Winthrop of Connecticut. It was published in 1678, two years after Winthrop's death at the age of seventy, so it seems reasonable to think that he wrote the article when he was an old man recalling what the Indians "used" to do in former days. The tribe or tribes to which he refers cannot be identified, but we may assume that it was not the Narraganset, for it may be recalled that Winthrop himself says that they set corn without fish.

Winslow, too, says that some of the Indians planted corn without fish, a remark probably based on his own observation, for it was published in 1624 after he had been in New England a few years. But his phrase given above, "according to the manner of the Indians," undoubtedly came from Squanto, for in 1621 Winslow scarcely knew any other natives and had surely not observed any other Indians planting their corn. Thus, the remarks of both Winslow and Bradford depend on what Squanto said.

He did not actually say, as he has been quoted as saying, that it was an old Indian custom to plant fish with the corn. We may only infer such a custom from his words, and it would be a fair inference if it were not beclouded by another circumstance. It seems to have been overlooked by many who have quoted Squanto that he spent the years from 1614 to 1619 in Spain, England, and, perhaps more to the point, among Englishmen in Newfoundland.[9] We can-

[8] William Bradford. *History of Plymouth Plantation,* Boston, 1856, p. 100. Edward Winslow, "Letter" (1621), *Arber, op. cit.,* 1897, p. 488. "Description, Culture, and Use of Maize, communicated by Mr. Winthorp (*sic*), *Philosophical Transactions of the Royal Society of London,* No. 142, 1678, p. 1066.

[9] "Letter of Thomas Dermer," *Collections, New York Historical Society,* 2nd series, vol. 1, 1841, p. 347 note; for Squanto's story, see also, Bradford, *op. cit.,* p. 95.

not know, of course, whether Squanto learned about the use of fish as manure from the English, but neither can we say that he did not.

If Squanto's statement were a reference to an old Indian custom, it would be inconsistent with native farming methods as we know them from other sources. It will be observed that both Winthrop and Squanto qualify their remarks with the terms "old" and "worn out" lands, the implication being that fish was used, or needed to be used, only on such lands. But we know that the Indians did not try to raise crops on the worn out lands; they quit them. Aboriginal agriculture in the eastern woodland was a system of shifting cultivation: land was continually being cleared, farmed for a few years, and then abandoned; and sometimes, after a period of restoring the soil fertility under forest cover, the old lands might be cleared and cultivated again. The employment of manure or any type of fertilizer was as foreign to native Indian farming as the horse and plow.[10]

THE LINGUISTIC ARGUMENT

Another type of affirmative evidence, or at least affirmative argument, is based on the etymology of "menhaden" and "poghaden" (also called "pauhagen" and "pogy"), which are local names of *Brevoortia tyrannus*, an Atlantic fish of the herring family. These names, according to J. H. Trumbull as quoted by G. Browne Goode, are derived from Indian words that mean literally "to fertilize," and Goode argues that this derivation constitutes "unanswerable evidence" for the manuring with fish in aboriginal time.[11] The validity of the argument naturally depends on the correctness of the etymology, which can be verified only by authorities in the Algonquian languages, and such verification is clearly needed and would be welcome, for there is reason to think that the argument is not quite so conclusive as Goode claims.

I am indebted to Professor Flannery for calling my attention to the fact that Trumbull qualifies the derivation of the name menhaden from the verb meaning to fertilize by "perhaps" ("whence perhaps the name," is his phrase). In deriving pauhagen or poghaden from the Abnaki Indian verb, Trumbull depends upon

[10] Even as recently as the late nineteenth century the Hidatsa Indians in North Dakota did not like any manure on their croplands; see, G. L. Wilson, *University of Minnesota Studies in Social Science*, No. 9, 1917, p. 117.

[11] G. Browne Goode. "Use of Agricultural Fertilizers by the American Indians," *The American Naturalist*, vol. 14, 1880, p. 474.

Father Rasles' dictionary of the Abnaki language for the words, but it should be noted that it is Trumbull, not Rasles, who makes the derivation. The latter has nothing to say about any connection between the name of the fish and the verb meaning to fertilize; and it may be further noted that in his description of Abnaki farming in the region of the Kennebec River during the 1690's, published elsewhere, Rasles makes no mention of manuring with fish or the use of any other fertilizer, for that matter.[12]

If a speculative note may be introduced, one may wonder, since the evidence for Indian use of fertilizers is at best rather dubious, whether they had a word meaning "to fertilize." The missionaries, who compiled many of the Indian dictionaries, studied the aboriginal languages largely for the purpose of translating the Bible, and had the problem of finding Indian expressions for manuring, for example in the parable of the fig tree, "I shall dig about it and dung it" (Luke 13, 8). If the Indians had no word for dunging, they soon got an idea for it—suggested perhaps by the missionaries—from seeing the New England colonists manuring their fields with fish. The question is perhaps whether the etymological cart has been put before the horse. Maybe the fish gave its name to manuring, instead of vice versa.

As a final point, it is very strange, I submit, that it is not shad nor alewife but menhaden which is supposed to have got its name from manuring. The menhaden is a marine fish; unlike shad and alewife, it never runs up the rivers, and is therefore far more inaccessible and less likely to have been caught in quantity and used as manure by a primitive people.

SUMMARY

There is no evidence in the primary sources that the use of fish as fertilizer was a common and widespread practice in any part of native North America. The only affirmative evidence comes from a sharply restricted area in southern New England, but that evidence cannot be accepted as conclusive proof that the practice was aboriginal, for it may have been introduced from Enrope in early Colonial time.

[12] J. H. Trumbull. "Natick Dictionary," *Bureau of American Ethnology, Bulletin* No. 25, Washington, D.C., 1903. pp. 69, 295. Sebastian Rasles. "A Dictionary of the Abnaki Language" (1691), *Memoirs, American Academy of Arts and Sciences,* New Series, vol. 1, 1833, pp. 510, 534, for description of Abnaki farming. Rasles, *Jesuit Relations,* edited by R. G. Thwaites, vol. 67, p. 143.

OIL, THE EUROPEAN DILEMMA, A STUDY IN ECONOMIC AND POLITICAL GEOGRAPHY

ERIC MANHEIMER
Tuckahoe, New York

After World War I a statesman was known to have remarked that the "Allies floated to victory on a sea of oil." This sagacious statement could certainly have application to any future conflict between nations. How impregnable would the defense network of the United States and its neighbors of the North Atlantic community be if their petroleum supplies were suddenly to cease? For the United States this situation would not be critical, because, fortunately, it has been blessed with an indigenous supply which flows from its own soil in sufficient quantities to meet its requirements

If we were to examine the European position however, we can notice that any attempt at preventing oil from being imported to the United Kingdom or to France would render these powers immediately helpless.

The Near East contains the earths most plentiful supply of oil and will be discussed in relation to western Europe, for it is in the latter area where the economies are almost entirely dependent upon the Arabian supply.[1]

THE UNITED STATES POSITION

In the United States the first oil well was drilled in Pennsylvania in 1859, and for about a quarter of a century Pennsylvania's oil development constituted 95 per cent of the oil supply. Because of imprudent exploitation the petroleum resources of this region declined to give precedence to the opulent yields of Kansas, Oklahoma, northern Texas, northern Louisiana, and southern Arkansas. These regions are responsible for making the United States the second ranking oil nation.

SOVIET POTENTIAL

The Soviet Union ranks third in oil production, and altho its present capacity does not keep pace with that of the United States its undeveloped potential is phenomenal. The Soviets' richest oil

[1] G. E. Pearcy and Russell H. Fifield, *World Political Geography* (New York, 1951) pp. 303-304.

supply is south of the Caucasus Mountains in Baku on the Caspian Sea. Baku is linked by an oil pipeline to Tbilisi (Tilflis), another oil producing area and thence to Batum on the Black Sea where oil refineries are located. Russia's second largest oil yield is in the region of Grozny across the mountains to the northwest. New oil fields are constantly being investigated in the entire Volga-Urals area, as is the peat of north and central European Russia and the shale near Leningrad and the southern Urals.[2]

Together with the acquisition of oil from its satelites, for example, Rumania, the Soviet status in a power politic world is excellent.

Venezuela's Increasing Yield

Following closely on the heels of the Soviet in oil resources is Venezuela whose yield is mainly exploited for export purposes. The Venezuelan supply is situated in the Gulf of Maracaibo where a new canal was built in 1954 to facilitate oil shipment.

Venezuela's first large oil development occurred in 1923. From that year until the present time its oil exports have increased from about 20 to 90 per cent. There is also evidence that this Pan-American country has not, by any means, exploited its vast potential and may in years to come multiply its yield of this vital product. The Venezuelan production is under the control of the Dutch, British and Americans.

Let us now turn to the European scene. Britain, it should be noted, is the largest petroleum consumer of Europe since it is, by far, the most industrially mature state of the European nations.

British and French Positions

For the United Kingdom there exists no extensive oil domain within its borders, thus, the protection of the lifeline of its source of supply furnishes us with background for the present international imbroglio. France, too, has become involved in this oil struggle, for as in Britain, France has had to look to the Near East for petroleum. Since the French position parallels that of England in this matter, we shall examine the British position in relation to its oil consumption.

[2] *The Soviet Union In Maps, Its Origin and Development*. George Philip & Son, Ltd., (London, 1954).

It is rather a simple matter to scoff at the United Kingdom's military intrusion of the Suez Canal, but it appears that there were two good reasons for the necessity of this operation. The first, being that any obstacles placed in the path of oil shipments thru the canal could have been detrimental to the British economy of which its present position is an example. Secondly, the defense of the canal from Soviet incursion was imperative in order to prevent a Russian strangle hold on western Europe and Britain.

Britain imported 7,228,946,000 gallons of crude oil in 1955 to operate its factories, machines, tractors, and motor vehicles. This constituted 83 per cent of its total. Of this, 37.4 per cent was used for fuel, 24.9 per cent for motor and aviation gasoline, 16.6 per cent for gas and diesel oil, 4.3 per cent for waste and minor products, 7.4 per cent in refining processes, 2.8 per cent for lubricating and burning, 3 per cent for bitumen, and 1 per cent to make propane, butane, paraffin, and other industrial oils.

The largest source of Britain's oil lies in Kuwait which is situated on the northwestern part of the Persian Gulf between Iraq and Saudi Arabia. Kuwait is limited in area, devoid of trees and contains the largest oil resources of the Near East. Politically it is ruled by a shiek under British protection. Oil production is controlled by the British Petroleum Co., Ltd. and the American Gulf Oil Company, each equally responsible for oil production.

The three other areas that supply quantities of oil to the United Kingdom are Iraq, Persia or Iran, and in Bahrein, Saudi Arabia on the Persian Gulf.

The complete dependence of Britain on the Near East was a great cause for concern during World War II and its leaders tried to explore other methods for obtaining petroleum. The existence of oil as a natural resource in England has been a well known fact for several centuries. Until the outbreak of war in 1939, however, very little was accomplished in developing the industry. Prior to the eve of the war the British Petroleum Exploration Co., Ltd. was instrumental in discovering the Eakring oil field in Nottinghamshire. In 1943, after extensive drilling, the Eakring field produced 110,000 tons of crude. In subsequent years, however, there was evidenced a marked decline in the yield. The use of water injection has been responsible for stabilizing production between 50,000 and 60,000 tons annually up until the present.

The entire Eakring project is owned by the British Petroleum

Company. Borings of other test wells in Dorset, Sussex, Berkshire, and Yorkshire demonstrated natural gas reservoirs. Even if the search for oil had failed these tests uncovered new potash deposits and coal seams.

Recently there were other discoveries of oil fields at Plungar, Leicestershire, Nottinghamshire, and Egmanton. There is evidence of other yields in southern England, west Midlands, the Formby area of Lancashire, and also in Scotland.

Since the United Kingdom will probably never become a major oil producing area it must continue to receive its oil from other sources. Presently its oil is being shipped to it by the United States as an emergency ration. When the Suez controversy is resolved Britain will resume full shipment of its near eastern oil supplies.

The Continental Status

Of all continental Europe, Germany, Austria, and the Netherlands are in much better positions regarding petroleum supplies.[3] Austria is about the only country to really hold its own by producing 3,700,000 tons in 1955. Western Germany was close with 3,200,000 tons followed by the Netherlands with 1,020,000 tons. France with 900,000 tons was followed by England wtih 500,000 tons. Italy and Sicily together produced 260,000 tons.

Thus it is unlikely that within the near future we shall see the Near East free from foreign activity. Nor is it likely that the Soviet Union will abandon its interest in this strategic area. Thus "king" petroleum may be the vital immediate cause for a third world conflict.

[3] A good picture of the petroleum supply of western Europe can be found in E. W. Putzger's *Historische Schulatlas*, Berlin, 1956.

ICELAND
A Fourth Grade Unit Study

Hazel Ward Hoffman
Keyport, New Jersey

This island lying between us and our European neighbors, seems to have been a neglected study until it was included in the fourth grade curriculum of a geography text. We were beginning an imaginary flight to Europe with a stopover at Iceland. How could one study this country without material? The text, tho inadequate

for a unit study, supplied more information than any other book. The children, having studied about Leif Ericson had many questions about the tiny land.

As a class we began investigating encyclopedias and finding very little. We then proceeded to study the text, gathering from it information to be put under six topics: country, people, transportation, history, climate and animals. Meanwhile we consulted as many publications as we could find based on this information. A copy of the *National Geographic Magazine* became invaluable. The committees were divided into handwork and report groups with each contributing to the other. Handwork was selected by the children to best illustrate their report. Questions were written and distributed to each member of the committee to find the answers. These were then turned over to the chairman of the reports who wrote it in final form while the others worked on the handwork. When these were finished, the reports were presented to the class with the handwork illustrating each report. All reports were open to a round-table discussion. We were fortunate enough to have a former visitor to Iceland in the school, whom we invited to talk to us. She showed us pictures, coins, a doll in costume and other objects from Iceland and was able to answer our remaining questions satisfactorily.

The children wrote a play about Leif Ericson, made dioramas of towns and animals, group illustrations, a map and a product chart. With the study of Iceland each one began a booklet of "Flags of the Nations." When we had completed the story the children felt that they had visited the tiny island and would someday like to visit it in reality.

Because it is so difficult to obtain information and because we enjoyed Iceland so much that we want to share it with you, we present here some of our findings.

Climate. Its location, only 160 miles below the Arctic Circle and 250 miles from Greenland, and its name speaks of a cold bleak country inhabited alone by polar animals. However this is not true for Iceland has even relatively mild winters, tho very windy and with short days. The shortest day of the year has about four hours of sunlight while in the northern part of the island and in some valleys the sun almost disappears completely. Even in January there are thaws as well as freezes. The harbor at the capital, Reykjavik, is open all year. The summer is cool but the temperature will reach

80°. Sunburns can also be obtained. It vies the "Land of the Midnight Sun," having twenty hours of sunlight. At 11:30 P.M. on a summer night, the sun can still be seen on the horizon.

Country. The center of the island is a plateau, partly covered with a glacier and is not habitable but the lowland around the plateau has a natural grass vegetation where some farming may easily be carried on. No trees grow here but low bushes flourish. Built on volcanoes and lava formations, there are geysers and springs to be found. Reykjavik, which means Bay of Smokes, uses the hot water from the springs for heating homes and offices and furnishes water for bathing in the outdoor pools. Volcano, Hekla, over four thousand feet in elevation, gives off active steam. Detti, a major waterfall is higher than our Niagara while Gull, 164 feet, is but three feet less. Streams, lakes, fijords are pleasant to the eyes of the tourist. The beauty of the aurora borealis is well known. The island covers 40,500 square miles.

People. An estimated 154,000 people inhabit Iceland with 58,671 living in the capital. These folks are much like the Norwegians with whom they have been so closely associated for a thousand years. A few speak English which is a required subject in the schools along with Danish. Their language is almost as pure as it was 800 years ago. One who knows it well can read the original sagas of the Norsemen. Eight years of elementary education is required thus they rank among the lowest in number of illiterates. The people love music and good books. They are particularly fond of outdoor sports, fishing, handball, pony rides, camping, picnicing, bicycling, skiing, and some hunting. The old folk dances have primarily given place to the modern. Stores are well stocked. Clothing is imported from Britian and the United States. The native costume of long dresses trimmed in gold and silver embroidery and black shawl are used for special occasions. Their homes are wood over corrugated iron, brightly painted, to relieve the treeless landscape. The old farmhouses are built of stone with sod roofs. A large family room with a fireplace is the center of activity while small rooms are used for storing and a place for the farmer to work during winter. The newer farm homes are built of cement and have electricity. The owners drive to town in their autos. Icelanders enjoy coffee and sweets. At 3:30 P.M. they have coffee time. Dinner is served at seven. Farm homes enjoy fish or mutton dinners and a nightly dessert of "skyr" (curdled milk) with cream and sugar.

The islanders, altho Evangelical Lutheran, have complete religious freedom. Christmas is celebrated with the importing of trees for the holiday.

Transportation. Since there are no trains on the island, boat, bus and air travel are most important. There is a civilian airport at Keflavik which is a stop for most of the planes that travel the northern route. Iceland has a small merchant fleet. Local communication includes 23,774 telephones altho most places are reached by mail boat only once a week.

Industries. Fishing and farming occupy the greatest number of people. A small amount of manufacturing is done. Cod and herring fisheries furnish a great quantity of the exports. Farming is mostly composed of raising sheep, horses, ponies and cattle, and growing hay for their food. Potatoes, turnips and some vegetables are raised. Greenhouses are fed by the hot springs which also supply hot water piped to the open fields for forcing vegetable growth. There are no big poultry farms. American grain is imported to supply the twenty or so hens on each farm. Some flowers are grown. The manufacturing includes woolen goods, candies, soap, oils and some furniture. A seven million dollar ammonium nitrate factory was completed in 1954. Among the exports are wool, oil, horses, eider down, mutton, sheepskin, and knitted woolen goods. Many kinds of food, lumber, cement, iron pipes and coal are imported also.

Fowl. During migration time much wild fowl is to be found in Iceland, especially wild ducks. The ptarmigan, similar to a goose, is native here.

History and Government. Before the Scandinavians came to Iceland, Irish monks inhabited the island. In 930 this independent republic joined with Norway. Christianity came about 1,000 A.D. As the home of Eric the Red, the story of his son, Leif Ericson, is here remembered for his voyage to North America while on a trip to bring Christianity to Iceland and Greenland, upon invitation of the king of Norway. In 1280 Denmark took over Norway and Iceland. In 1874 they were given permission to have their own constitution. Twenty-nine years later a special minister was sent to the island. King Christian X of Denmark in 1918 acknowledged Iceland a sovereign state under his dominion. This ended June 17, 1944 when independence was declared after about 98 per cent of the voters took part in final decision during May. The Althing is the oldest

parliament in the world, more than 1,000 years old. Asgeir Asgeirson is president of the republic. No communist is allowed to participate in the cabinet. Both men and women over twenty-one are given the right to vote. A peace loving country, the island has no army, navy or forts. The flag of Iceland is that of Norway in reversed colors; a red cross imposed on a white cross and placed on blue ground.

Besides these facts about Iceland, we began to see that basically peoples of different countries are much alike in needs, habits and manner of living. We discovered that people's occupations were dependent on climate and country. We compared Iceland with its parent, Norway. Relationships between countries, industries, climate and government were seen. We discovered that this tiny island, altho somewhat hampered by its location, is fast developing into a country which is making a name for itself in the world. In addition we learned new terms, new skills in map reading and other fundamental points covered in all geography teaching.

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A PROJECT STUDY OF CLIMATE

J. BERNARD RAY
Avalon High School, Pittsburgh

Climate, as all geographers know, is one of the factors that determines how man will make a living, what he will wear from day to day, and the type of home in which he will live. Since the adjustments man must make to the different kinds of climate are so varied and vitally important to an understanding of the various regions of the world, I felt a more intensive coverage than that

given by your textbook was necessary; hence, the following project committee-work developed from a felt-need of an 8th grade geography class.

Taking it in its broadest aspects, we divided the many climatic regions of the world into the following types.

1. Hot, Rainy Climate (Tropical Rainforest)
2. Half Wet, Half Dry Climate (Tropical Grasslands)
3. Hot Dry Deserts (Tropical Deserts)
4. Mediterranean Climate
5. Warm Moist Climate (Semitropical)
6. Marine Climate
7. Four Season Climate (Continental)
8. Sub Arctic
9. Tundra
10. Steppe
11. Highland Climate
12. Ice Cap

A group of pupils was assigned to each of the regions with the idea of trying to find a climate in which they were particularly interested.

Following this step, each individual was shown that his part of the work was necessary in getting a complete understanding of the unit, and without his help a complete coverage of the material was impossible.

It was decided that a knowledge of the following factors was essential for each climatic area.

1. How is the house pattern determined by the climate? Of what is it made?
2. How does the climate affect the type of clothing worn?
3. How does the climate affect the kind of crops grown?
4. Has the climate influenced the kind of animals raised?
5. Are there any industries which are a direct outgrowth of the climate?
6. Are there any unique modes of transportation that are a direct outgrowth of the climate?
7. How has the climate, if at all, affected progress in the region?

DEVELOPMENT OF THE UNIT

The first job of each committee was to locate the areas of the world in which his climate was found, and second, to formulate the physical conditions of climate with respect to rainfall, humidity, temperature, vegetation, etc. After the members of each group had drawn together the necessary climatic data they were supplied with sufficient reference material to show the above mentioned relationships.

To add greater visual aspect, each group built in class, with the assistance of the teacher, a geographic layout showing the type of physical surroundings, house pattern and, if possible, some of the work activities which would be characteristic of the climate. A written description accompanied the project.

Since the teacher is not a geographic determinist, it was pointed out that climate is not the only factor in man's adjustment to his environment but plays a prominent role.

PRESENTATION

One member of each committee was responsible for reporting on the man-climate relationships.

A second member of the committee reported on the geographic layout and tried to bring into the explanation any new vocabulary words having a direct bearing on the understanding of the region. In this way we arrived at a visual impression of some of the basic man-climate relationships.

My work was included as part of the unit, and the location of the climatic pattern for each of the continents was learned.

At the completion of the unit, each person was responsible for making a booklet with an illustrated map showing the location of all the climates studied, as well as a description of each. Furthermore, a listing of all basic man-climate relationships and at least one good picture (drawn or cut from a magazine) illustrating each climate was required. Any new vocabularly words necessary in understanding the climate were included.

It should be remembered that our work was rather comprehensive; and yet a complete coverage of the subject was not attempted because of its magnitude, but served only as an introductory unit showing some of the many adjustments man has had to make to his environment in various parts of the world.

TESTING

A variety of testing devices can be used for this type of work, but I have found this method most successful. After completing two climates, a thoro essay test was given to determine whether the material was learned. Such questions as the following were included:

1. Explain the house pattern of the Tropical Rainforest and relate it to the natural conditions of the climate.

2. Describe the kind of transportation used in the Tundra and explain what climatic conditions best determine it.
3. Give a description of the type of clothing worn in the Hot, Dry Deserts and tell about the natural conditions that make this type of dress necessary.

Having completed the unit, a test of the multiple choice variety was given to still further determine mastery of the material.

It should be remembered that this type of testing necessitates more reading and correcting on the part of the teacher, but pays off in geographic understanding for the student.

CONCLUSION

I feel that this type of unit is excellent not only for the brighter child but also for the slower learner. Here we have several types of abilities being used. The more academic minded child has the chance to use his superior intellect in the research part of the work while the student with below average or average intelligence has the chance to do the more manual tasks involved.

Furthermore, in this type of work, the teacher and students must realize exactly what is to be done, and then set a time limit so that the work will create a constant challenge and not result in boredom.

THE NATIONAL COUNCIL AT WORK

A large part of the work of the National Council for Geographic Education is done thru committees. For convenience, the committees may be divided into two major groups, namely: Permanent Committees and Project Committees. The project committees are appointed by the president as directed by the action of the Board and are assigned a specific piece of work to do. The work assigned may require from one to a period of years to complete.

The following is a list of the Permanent and Project Committees for 1957:

1. Committee on Distinguished Service Award. Katheryne T. Whittemore (Chairman), Howard Martin, Alfred W. Meyer, M. Melvina Svec, Nora Zink.
2. Committee on Inquiries. Fred K. Branom.
3. Committee on Survey of Research in Geographic Education. Paul F. Griffen (Chairman), Martha Corry, R. S. Funderburk, Hildegard Binder Johnson, Lorrin Kennamer.
4. Committee on Research Funds. Loyal Durand (Chairman), Katheryne T. Whittemore, Nels Bengtson, Frances Hanson, John Garland.
5. Committee on Planning. Adelbert Botts (Chairman), Henry J. Warman, Otis W. Freeman, M. Melvina Svec, John W. Morris, Ina Cullom Robertson.
6. Committee on Publications. I. Edwin Becht (Chairman), Harriet Long, John Reith, George J. Miller, John Morris.

7. Committee on Revision of the Journal of Geography Awards. Guy-Harold Smith (Chairman), George J. Miller, Ina Cullom Robertson, J. Russel Whitaker.

8. Index Committee. John W. Morris (Chairman), Mary E. Morris.

9. Conservation (Resource Use) Education. Sigismond deR Diettrich (Chairman), Thomas Chamberlain, Sam Clagg, J. Sullivan Gibson, Thelma Flavin, Nicholas Helbrun, Ella Keene, Oliver Laine, Ruben L. Parson, George T. Renner III, Francis Schadegg.

10. Television in Geographic Education. Jewell Phelps (Chairman), Robert Cramer, Mildred Danklefson, Kenneth P. Haydon, Leonard I. Kuntz, Robert Redden, Alfred Summer, John H. Walker, Henry J. Warman.

11. Testing Committee. Berenice Casper (Chairman), F. Douglas Hammond, Frank E. Sorenson, Ruth H. Stanley, Adelle Zigrang.

12. Bibliography of Reading Material. Helen Mixter (Chairman), Emily H. Baker, Zita Anne Mueller, Adelaide Blough, Harriet Lee, Anna Moengen.

13. Careers in Geography. Lorrin Kennamer (Chairman), Wilhelmina Hill, John Bonham, Helen White, Phillip Bacon, M. Melvina Svec.

14. Bulletin on Teaching of Geography. Clyde F. Kohn (Chairman), Henry Warman, Katheryne Whittemore Thomas, Helen Mixter.

15. National Exhibits of Student Projects in Geography. Virginia Morrison (Chairman), Katherine Montgomery, Eugenia Baxter, Julia Loya, Irene Brockmyer McKelvey, Dorothy Pero.

16. Committee on Local Arrangements Handbook. Helen Mixter (Chairman), Edward L. Biller, Jr., Katherine Stritehoff, Katherine Scott, Berenice Casper, Jessie Turk, Evelyn Hightower, Marie Remmer.

INA CULLOM ROBERTSON, *President*

GEOGRAPHICAL PUBLICATIONS

G. H. Gopsill. **The Teaching of Geography.** Macmillan and Co. Ltd., St. Martin's Press, New York, 1956. 316 pages, 85 sketch maps and diagrams. $5.00.

This book presents the English point of view on the teaching of geography. However, any American Teacher will find many interesting and worthwhile suggestions in it.

In the first section Mr. Gopsill discusses the history of the teaching of geography in the English schools and the various viewpoints of the nature of the subject. The reader notes many similarities to the history of the subject in this country.

In Section II, he deals with the teaching of maps in considerable detail. This section has many valuable suggestions for any teacher on introducing the map and the uses of outline maps.

In Section III he applies general principles of learning to the teaching of geography. This is an excellent section. Any teacher of geography from the elementary grades to the teacher of college freshmen could read it with profit. His discussion of the assignment is practical and to the point. The chapter on "Informal Methods" includes, (1) the use of Topical Events or what we call "Current Events," (2) teaching the time belts, (3) use of films, (4) use of fiction and travel accounts, (5) school journeys, (6) ship adoptions by schools, and (7) foreign letters. Many original suggestions for the use of these techniques are given.

In Section IV he discusses the use of various visual aids. His illustrations and discussion of how to use chalk and the blackboard should be an eye-opener to many teachers. Many teachers seem to be afraid of the blackboard, their cheapest and most effective visual aid. Perhaps after reading this chapter they can approach the blackboard with greater confidence.

Section V contains a discussion of the English Geography Syllabus and the planning of a Geography Room.

Altho Mr. Gopsill's book would not meet the needs of a methods course textbook for a teacher-training class in the United States, it certainly should be on the reading list for such a course. The teacher who wishes to improve his or her technique will find many worthwhile stimulating suggestions and ideas in it.

ZOE A. THRALLS

University of Pittsburgh

Clifford M. Zierer, ed. **California and the Southwest.** John Wiley and Sons, Inc., New York, 1956. x and 376 pages with illustrations, maps, tables bibliography, and index. $11.25.

California and the Southwest is a long awaited contribution and the third in a series of texts designed to cover the United States by regions. As such it meets the needs of the professional geographer and layman alike. Changes in all types of activity in the Southwest have been nothing short of spectacular. New industries and new cities have mushroomed in many areas. Agriculture, too, has continued to expand and still remains an important segment of the regions' economy. Probably no other area of the United States has grown at such an explosive rate; or has had its population more than double in the past decade. These many changes are treated topically by a team of 32 experts who live in the region, and who have been in a position to experience, first hand, this unbelievably rapid metamorphosis from farm to factory and from factory to city.

Part I—physical characteristics of the region—deals with such topics as major landform divisions of California, major landform divisions of the southwestern interior, weather and climate, water resources, soil resources and management, vegetation, animal life, and the ocean off the California coast. This background material is very essential to a further understanding of the region. Unfortunately, however, too little space has been devoted to it. Some of the material is new and is particularly worthwhile, especially the chapters on animal life and the ocean off the California coast.

Part II—cultural characteristics of the region—comprises approximately three-fourths of the book. It covers a wide range of topics under the following headings: (a) Indian occupance and early white settlement; (b) agricultural activities; (c) other kinds of resource use; (d) manufacturing industries; (e) transportation and trade, and (f) population patterns and political relationships. Much of this material is very useful and is presented in an interesting manner. An excellent choice of illustrations greatly aids the text. One great weakness is the use of 1950 census data as the source for many of the tables. This does not present a true picture of the region, since some of the greatest changes have occurred since 1950. Also the topical arrangement of subject matter results in a series of unrelated essays rather than a unified treatment of regional material. It is designed more as a reference work than as a text and as such is a worthy contribution to the geography of the United States.

PAUL F. GRIFFIN

Stanford University
Stanford, California

George B. Cressey. **Land of the 500 Million—A Geography of China.** McGraw-Hill Book Co., Inc., New York, 1955. xv and 387 pages with illustrations, maps, bibliography, and index. $7.50.

Over twenty years have elapsed since the publication in 1934 of Cressey's *China's Geographic Foundations*, a work which has become the standard geographic survey on China in English. *Land of the 500 Million* appears at a time when traditional values in China are being overthrown, and new ones ushered in with great haste. Industrialization, with emphasis on the heavy industries, receives the highest priority in the Communist government's program for the development of the country. Cressey's new book aims to provide a basis for the evaluation of present livelihood and of economic social, and political potentials.

In appearance and method of approach, *Land of the 500 Million* closely resembles Cressey's earlier work. The first part of the book surveys the country as a whole. The land and the people; climate, water problems, agriculture, mineral resources, commerce and industry, each topic is lucidly and authoritatively treated from the standpoint of a geographer who has travelled far and wide in the country. The second part of the book approaches the country regionally.

The book is profusely illustrated. A well-chosen photograph adorns every other page. The aerial views by the U. S. Air Force, such as the one of the eroded loess areas of Honan, render the Chinese landscape strikingly vivid. The great merit of the book in fact lies in its successful evocation of the multiple facets of the traditional Chinese landscape. However, as a basis for the evaluation of economic and social potentials, it does not put sufficient stress on the changes that are being made by the Communist government, both in agriculture and in industry. A useful supplement to the *Land of the 500 Million* would be *An Economic Survey of Communist China* by the economist Yuan-li Wu.

YI-FU TUAN

Indiana University

A. W. Wells. **Southern Africa Today and Yesterday,** E. P. Dutton and Co. Inc., New York, J. M. Dent and Sons Ltd., London, 1956.

There is much in this book of interest to geographers and historians concerned with the Union of South Africa. Unfortunately, however, information is of an incidental rather than of a "main trend" nature. Mr. Wells is, nevertheless, a fine story teller.

As the author admits, this book is a guidebook, and it is a revision of an earlier work by Mr. Wells. A good guidebook makes use of excellent maps appropriate to the detail of text material. *Southern Africa Today and Yesterday* is in many respects detailed; yet, adequate maps are entirely lacking. Frequent use of unfamiliar place names not found in readily available atlases is confusing when unaccompanied by adequate maps. The discussion of locations within the large cities of the Union of South Africa would have been enhanced by the use of maps showing main streets and locations of sites mentioned.

The book is filled with anecdotes about people, animals and places which are intriguing but hardly of importance. Stories about General Smuts, tigers, baboons, the gold fields and the South African theater are informative only if the reader has considerable prior knowledge.

Scattered in many sections of the books are wordy attempts to justify existing white-native relationships. The author makes every attempt to be objective, but there is little doubt of his true feelings concerning *apartheid*.

If one does not already possess competent geographical and historical knowledge of the Union of South Africa, he may well find *Southern Africa Today and Yesterday* frustrating and perhaps even of little value. The book in several instances gives the impression of being "thrown" together rather than organized.

Fresno State College

CHESTER F. COLE

Gertrude Whipple and Preston E. James. **Basal Geographies: Our Earth, Using Our Earth, Our Changing Earth, Living on Our Earth, At Home on Our Earth, Neighbors on Our Earth, Our Earth and Man,** revised edition, with teachers' manuals. The Macmillan Company, Chicago, Illinois, 1955.

This series of elementary texts including a two or one year readiness program (*Our Earth,* and *Using Our Earth* or *Our Changing Earth*) provides considerable leeway in grade adaptation from 3-8 or 3-7 or 4-8; however, no specific grade placement is indicated. The texts with the accompanying teachers' manuals make a definite contribution to the field of geography.

The readiness program is of distinct value for the basic concepts of the earth's surface, position, landscapes, seasons, use of areas, and changes made by man and introductions to maps are interestingly presented and excellently illustrated. Too often the unfamiliar words, and multiplicity of terms, in the first study of geography creates a barrier to learning and a dislike for the subject, which may in part account for the American geographic illiteracy.

The systematic study of geography is introduced by *Living on Our Earth,* a volume devoted to human cultures, arranged more or less from simple to complex. The transition from a relief globe to a map simulating global curvature to a flat map is quite skillfully done. Relief is given a prominent place on maps, but color layers are also introduced. In the upper grade texts maps of landform type regions also convey some relief.

The last three books of the series differ basically from most other geography series in that their organization is not by continents, but by regions, which have similarities of culture or development. In *At Home on Our Earth* the United States and the British Commonwealth are studied, presumably because of the industrial culture of both. United States possessions are included, and in the Commonwealth greatest emphasis is placed on the independent members Australia, New Zealand, Union of South Africa, and Canada whose population is primarily of European origin.

In *Neighbors on Our Earth* basic unity is achieved thru the Latin heritage and dominantly pre-industrial society. Two-thirds of this text deals with Latin America, the rest with Mediterranean Lands.

The final book in this series *Our Earth and Man* is organized around Makinder's "World Island" with the Soviet Union as its core, and in turn nations bordering this core in Europe and Asia are discussed. Four additional chapters deal with world centers of raw material production, manufacturing and world trade, conservation of earth's resources, and world problems of population and settlement.

Major changes from the first edition are in *Living on Our Earth* and *Our Earth and Man.* In some of the others statistics are not revised and some pictures are dated. A glaring error of color occurs in the cotton and corn harvesting pictures on pages 320 and 329, *Our Earth and Man,* in Illinois at least both are not green at harvest. Corn cribs and strawstacks as pictured in the manual *Our Earth* are not characteristic of the Mid-west.

The presentation in all books is of a high geographic caliber, and the teachers' manuals are so expertly written that even a modestly trained teacher in the field of geography could achieve measurable success. All texts are well illustrated by pictures and maps, so vital for understandings and relationships.

Southern Illinois University

Annemarie Krause

Hans W. Weigert, Henry Brodie, Edward W. Doherty, John R. Fernstrom, Eric Fischer, and Dudley Kirk. **Principles of Political Geography.** Appleton-Century-Crofts, New York, 1957. xiv and 723 pages with maps, tables, and index. $7.95.

Books on political geography can easily become encyclopedic. In *Principles of Political Geography* six authors have taken considerable care to include only relevant data and to keep that data subordinate to political analysis. This combination of facts and principles has been particularly happy in Part 1, The Spatial Factor in Political Geography which deals with size, shape, boundaries, core areas, and location. Theories of political geography are not discussed by themselves but are worked in under other topics; for example, a full and critical discussion of Mackinder's theories is included under "The Impact of Location on Strategy and Power Politics." The same chapter, one of several overlong chapters, touches on such broad topics as regional arrangements and the United States defense perimeter.

Part 2, The Human and Cultural Factor in Political Geography, handles, unusually well, such difficult topics as population pressure, migrations, languages, and religions. For example, the decline of France and the rise of German power are partly accounted for in demographic terms; the linguistic basis of most Indian states is clearly presented; and the political significance of Catholicism, Protestantism, and Islam is dispassionately analyzed.

Part 3, The Economic Factor in Political Geography, probably the most difficult part to write, seems less satisfactory than the preceding parts. Its chapters are organized on a regional basis and considerable regional geography is included without always showing its relevance. However, each chapter raises pertinent political points and the background data offered is up-to-date and often not readily available in small libraries.

This text is a sampling rather than a survey of the field of political geography. The authors have perferred to present a worthwhile analysis of selected topics and areas rather than a superficial account of the whole field. While most teachers will wish to supplement the text on some topics, this volume will serve as a good introduction to political geography.

Indiana University

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GEOGRAPHICAL PUBLICATIONS RECEIVED

Katharine Scherman. **Spring on an Arctic Island.** Little, Brown & Co., Boston, 1956. xvii and 331 pages with photographs, and index. $5.00.

The author describes in nontechnical language the complex, delicate, uneasy balance of tundra life, including such strange arctic phenomena as the far-reaching influence of the lemmings on the lives of all birds, mammals and vegetation.

Aurel Krause. **The Tlingit Indians.** University of Washington Press, Seattle, 1956. viii and 310 pages with illustrations, vocabulary, bibliography, and index. $4.50.

This volume, published for the American Ethnological Society and translated from the German by Erna Gunther, gives the results of a trip to the Northwest Coast of America and the Bering Straits.

R. C. Honeybone and Mary G. Goss. **Britain and Overseas.** William Heinemann, Ltd., London, 1956. viii and 196 pages with maps, photographs, and index. $2.20.

Prepared for use in the first year of secondary schools, this is the first of a series of five books. It deals with a few sample areas of the British Isles in particular and of the world in general.

Sir Mortimer Wheeler. **Still Digging.** E. P. Dutton & Co., Inc., New York, 1956. 236 pages with photographs and index. $4.00.

An autobiography of an eminent English archaeologist.

GEOGRAPHICAL PUBLICATIONS RECEIVED

Robert Morgan. **World Sea Fisheries.** Pitman Publishing Corp., New York, 1956. xiv and 307 pages with illustrations, charts, maps, and index. $6.95.

This book makes a comprehensive world survey of the fishing industry. Section I deals with physical and biological factors; Section II, techniques and their geographical distribution; and in Section III the world is studied region by region, discussing total production, composition of catches, the industry's value to nutrition and economy, exports, technical advancement and expansion.

Howard Becker and Irwin T. Sanders, eds. **Societies Around the World,** Abridged Ed. The Dryden Press, New York, 1956. xx and 811 pages with photographs, maps, and index. $6.50.

This new shorter edition covers under Part One an introduction which includes How to Study a Society, On Understanding a Society, Sociocultural Change, and Ourselves as a Society; The Eskimo; The Navajo; The Baganda and Some Social-Science Generalizations. Part Two, Social Change on a Worldwide Scale includes The Chinese Peasant, The Cotton South, The English Midlands and Conclusions.

Ruby M. Harris. Living in Africa Series of four filmstrips: **Living in North Africa** (61 frames), **Living in Egypt and Sudan** (66 frames), **Living in Central Africa (Congo and Guinea Coast)** (61 frames), and **Living in Eastern and Southern Africa** (67 frames). Society for Visual Education, Chicago, 1956. Series $19.00, each filmstrip $6.00.

These filmstrips are produced cooperatively with the Rand McNally and Company and are in color.

W. de Groot van Embden. **Life in Europe: The Netherlands.** The Fideler Co., Grand Rapids, Mich., 1955. 160 pages with photographs, glossary, and index. $3.28.

An elementary, supplementary textbook designed to help the student acquire an interest in geography and written by a man who was born and educated in the Netherlands.

Gerhart H. Seger. **Life in Europe: Germany.** The Fideler Co., Grand Rapids, Mich., 1955. 160 pages with photographs, glossary, and index. $3.28.

Another elementary textbook in the *Life in Europe* series, written by a German who is now an American citizen.

Vincent H. Malmström and Ruth M. Malmström. **Life in Europe: Norway.** The Fideler Co., Grand Rapids, Mich., 1955. 160 pages with photographs, glossary, and index. $3.28.

Written by a geographer and his Norwegian wife, this elementary text has an abundance of large photographs as do all the books in the *Life in Europe* series.

L. Dudley Stamp and S. Carter Gilmour. **Chisholm's Handbook of Commercial Geography,** 15th ed. Longmans, Green and Co., Inc., New York, 1956. xiii and 915 pages with maps, diagrams, tables, and index. $16.00.

In this 15th edition of a reference book note has been taken of many developments, such as the restoration of sovereign power to Western Germany and Austria, settlement of the Trieste problem, British evacuation of Suez Canal Zone, etc.

L. Dudley Stamp. **A Regional Geography—Part I: The Americas,** 7th ed. Longmans, Green and Co., Inc., New York, 1956. viii and 269 pages with maps, diagrams, tables, and index. $4.00.

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Hallam L. Movius, Jr. and Sheldon Judson. **The Rock-Shelter of La Colombière.** Peabody Museum of Archaeology and Ethnology, Cambridge, Mass., 1956. Bulletin No. 19. x and 176 pages with illustrations, photographs, charts, tables, and references. $4.85.

Theodore Huebener and Carl Hermann Voss. **This is Israel.** Philosophical Library, New York, 1956. x and 166 pages with photographs, reading list, and index. $3.75.

Presents the historical and cultural background of Palestine and of the Hebrews from the earliest times up to the present.

Educators Guide to Free Films, Sixteenth Annual Edition 1956. Educators Progress Service, Randolph, Wisconsin. 560 pages. $6.00.

This edition replaces all volumes and supplements which have preceded it.

F. H. Edmonds. **Geology and Ourselves.** Philosophical Library, New York, 1956. 256 pages with maps, photographs, diagrams, and index. $10.00.

The author has had a wide and varied experience in the economic applications of geology. He has written this book to show the importance of geology in our everyday lives.

Nels A. Bengtson and William Van Royen. **Fundamentals of Economic Geography,** 4th Ed. Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1956. xxv and 611 pages with maps, diagrams, photographs, suggested readings, and index. $8.70.

This fourth edition includes addition of new chapters and reorganization of others, as well as revision of all chapters of the book.

John F. Hall and Robert L. Alkire. **The Economic Geology of Crawford, Marion, Morrow and Wyandot Counties.** Report of Investigations No. 28, Division of Geological Survey, Ohio Department of Natural Resources, Columbus, 1956. v and 43 pages with maps, diagrams, tables, and bibliography. $1.00.

This report covers the economic and general geology of these four counties located in the central and north-central part of Ohio.

The Survey has also published an **Ohio Landform Map,** a **Mineral Industry Map of Ohio,** a **Summary of Oil and Gas Well Drilling Activity in Ohio During 1955,** and **Bituminous Coal Production in Ohio by County, 1800-1955.** These are distributed free and should be of value to teachers, especially at the high school and college level.

Annual Coal and Non-Metallic Mineral Report for 1955. Division of Mines, Department of Industrial Relations, Columbus, Ohio, 1956. 175 pages.

This report includes directories of reporting firms.

Educators Guide to Free Slidefilms, Eighth Annual Edition 1956. Educators Progress Service, Randolph, Wisconsin. 188 pages. $5.00.

This volume notes the availability of free slides as well as slidefilms. With each annual edition being a complete new revision, it is a service that continuously renews itself.

Clifford M. Zierer, ed. **California and the Southwest.** John Wiley & Sons, Inc., New York, 1956. x and 376 pages with tables, maps, graphs, illustrations, references, and index. $11.25.

Written by 32 authors, each chapter stands as a complete essay on a given topic, yet the book as a whole gives a unified picture of the entire region, which includes California, Nevada, Arizona, and Utah.

Farley Mowat. **Lost in the Barrens.** Little, Brown & Company, Boston, 1956. 244 pages with illustrations. $3.00.

A story of the adventures and explorations of a city boy and an Indian boy in the Arctic, written for the intermediate grades reader.

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